

### **AMENDMENTS TO THE CLAIMS**

1. (Currently amended) An assembler for a target microprocessor, the assembler comprising:  
a descriptor of the assembler file containing information descriptive of ~~[[the]]~~ an instruction set of said target microprocessor, wherein at least one instruction in the instruction set is aligned with a starting position of a bit field;  
a translation device of the assembler for translating assembly language instructions into machine language as an output;  
a fetching device of the assembler for acquiring data from said descriptor file;  
a control device of the assembler arranged to receive said data from said fetching device and said machine language from said translation device, and operable to constrain the machine language to conform to ~~[[the]]~~ an architecture of said instruction set, wherein the machine language is constrained using the at least one instruction in the instruction set that is aligned with the starting position of the bit field; and  
a data transfer device of the assembler arranged to output selected data fetched from said descriptor file directly to a linker.
2. (Previously presented) The assembler of claim 1 wherein the descriptor file further comprises syntax information for each instruction, and the control device constrains each instruction on the basis of said syntax information.
3. (Previously presented) A system for assembling a machine language program, comprising the assembler of claim 1 and further comprising a data capture device having an input for accessing the instruction set of said target microprocessor and having an output, wherein said output comprises said descriptor file.
4. (Currently amended) A system for assembling a machine language program, comprising the assembler of claim 1, wherein the ~~and further comprising a linker, whereby said~~

linker receives the ~~uses said~~ selected data fetched from the descriptor file by the data transfer device and the machine language constrained by the control device to perform operations on the constrained machine language according to the selected data to modify the translated output of said system.

5. (Currently amended) A method of assembling a machine language program for a target microprocessor comprising:

providing a descriptor file containing information descriptive of ~~the~~ an instruction set of said target microprocessor, wherein at least one instruction in the instruction set is aligned with a starting position of a bit field;

translating assembly language instructions into machine language wherein the translation comprises:

directly transliterating the assembly language instructions to machine language;

acquiring data from said descriptor file;

constraining the directly transliterated machine language to conform to ~~[[the]]~~ an architecture of said instruction set, thereby assembling the machine language program for the target microprocessor, wherein the machine language is constrained using the at least one instruction in the instruction set that is aligned with the starting position of the bit field;  
and

transferring selected data acquired from said descriptor file directly to a linker.

6. (Currently amended) A method ~~as claimed in~~ of claim 5 wherein said descriptor file further contains syntax information for each instruction of the instruction set, and said constraining ~~step~~ comprises constraining each assembly language instruction using said syntax information.

7. (Currently amended) A method of preparing a program executable on a target microprocessor comprising:

capturing data from ~~the~~ an instruction set of said target microprocessor thereby forming a descriptor file containing information descriptive of said instruction set, wherein at least one instruction in the instruction set is aligned with a starting position of a bit field;

providing assembly language instructions for said target microprocessor;

translating each assembly language instruction into a corresponding machine language output; and

using data from said descriptor file, constraining the machine language output to conform to ~~[[the]]~~ an architecture of said instruction set, wherein the machine language is constrained using the at least one instruction in the instruction set that is aligned with the starting position of the bit field;  
and

transferring selected data from said descriptor file directly to a linker.

8. (Currently amended) A method of preparing a program executable on a microprocessor, comprising:

providing plural program modules, at least one of said modules having one or more instructions including external symbols, wherein external symbols have values which cannot be determined without reference to another program module;

providing a descriptor file containing information descriptive of ~~[[the]]~~ an instruction set of said target microprocessor, wherein at least one instruction in the instruction set is aligned with a starting position of a bit field;

translating assembly language instructions into machine language wherein the translation step comprises:

directly transliterating the assembly language instructions ~~[[to]]~~ into machine language;

acquiring data from said descriptor file; and

constraining the directly transliterated machine language to conform to ~~[[the]]~~ an architecture of said instruction set, wherein the directly transliterated machine language is constrained using the at least one instruction in the instruction set that is aligned with the starting position of the bit field;

transferring selected data acquired from said descriptor file directly to a linker; and  
binding external symbols to addresses using data selected from said descriptor file, thereby  
preparing the program executable on the microprocessor.

9. (New) The method of claim 7, wherein the linker receives the constrained machine language and performs operations on the constrained machine language using the selected data from the descriptor file.
10. (New) The method of claim 9, wherein the operations performed by the linker comprise operations performed on at least one external symbol.
11. (New) The assembler of claim 1, wherein the descriptor file includes an encoding function and the control device uses the encoding function to constrain the machine language to conform to the architecture of the instruction set.
12. (New) The assembler of claim 11, wherein the descriptor file further includes a decoding function, the decoding function used to check for at least one error in the assembly language instructions.